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Accounting for Transaction Costs in Planning Policy Evaluation

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Abstract

The costs incurred in the design and implementation of planning policy instruments are not always considered sufficiently. In order to increase the efficacy of planning policy instruments, these transaction costs need to be taken into account. While such transaction costs are expected to vary according to their institutional design and arrangements, up to now there has been no systematic research concerned with how planners should consider transaction costs, and other institutional aspects, as evaluation criteria in planning policy analysis. This paper investigates how, and in which stages, these costs can be included in planning policy design and analysis. Using the literature of transaction costs and new institutional economics, this paper proposes a framework for integrating these costs into evaluating planning policy instruments. This framework consists of different factors that influence transaction costs in designing and implementing a planning policy instrument. Although some researchers have discussed the influence of factors concerning the characteristics of transactions and transactors, there has been limited consideration of the importance of factors related to the characteristics of a policy. This paper argues that policy characteristics, such as, simplicity, age of the policy, precision of the policy, policy approach, public involvement and participation, and policy credibility and consistency, can affect transaction costs in any policy. Therefore, the paper concludes that, in addition to transaction and transactor characteristics, a 'policy characteristics' category should be included to emphasise the importance of policy selection and design in transaction costs of a planning policy instrument.

Keywords: Transaction Costs, Planning Policy Instruments, Policy Design and Analysis, Evaluation Criteria, New Institutional Economics.

1. Introduction

It has been argued that there is limited focus in the planning literature concerning what constitutes a good policy or plan. As Alexander and Faludi (1989, p.127) opine, "if planning is to have any credibility as a discipline or a profession, evaluation criteria must enable a real judgment of planning effectiveness: good planning must be distinguishable from bad." Otherwise, it seems that Baer's (1997, p.329) analogy on comparing plans and arts in answering the question "how would you know a good art [plan], if you saw one?" would be valid. He discusses that without evaluation criteria, the apocryphal answer to these questions are the same and would be "I don't know much about arts [plans], but I know what I like." In fact, it is inevitable for planners to answer to these fundamental and normative questions: what is a good policy and what makes it good? Baer (1997) argues that planners sometimes merely rely on some value judgments which tend to be vague and subjective.

They may avoid providing an answer, and instead focus on the methods and process of plan making. However, planners are required to develop a set of criteria which enable them to decrease the level of subjectivity in the evaluation process (Lichfield, 2001b, Alexander and Faludi, 1989, Oliveira and Pinho, 2010, Laurian et al., 2010, Seasons, 2003). Without these criteria, any judgment planners make cannot be properly justified and validated (Shahab et al., 2017a). On the other hand, using proper criteria, policy analysts would be able to judge the quality of the policy, and more importantly what the outcomes of a policy are. Also, these criteria provide planners with a framework for systematic evaluation which includes some indicators and measurements to assess the success of a policy. Planners can specify and clarify what the important policy goals are, how they could be measured, what would be the rules for comparing policies and which one should be chosen.

Different policy evaluation criteria are suggested by economists, and policy makers (European Commission, 2008, Oliveira and Pinho, 2009, Talen, 1997, Shahab et al., 2017a). Among those, two fundamental criteria of efficiency and equity, presented by welfare economics theory, are frequently used by policy analysts. Efficiency is associated with maximisation of the result and minimisation of the waste, whereas equity concerns distribution of the resources, goods, and services among individuals. In other words, while efficiency concerns the size of the pie, equity addresses shares or slices of the pie among people and groups. One of the factors that influences these two criteria is 'transaction costs'. Welfare economics, however, does not pay sufficient attention to transaction costs, and other institutional aspects, in policy design and analysis (Adams et al., 2008). This is one of the main criticisms which new institutional economists make. They argue that transaction costs should be considered in policy design and analysis. High levels of transaction costs associated with implementing a policy can decrease the efficiency of the policy. According to Rørstad et al. (2007), the costs of managing a policy can have the same importance for efficiency as those of producing goods and services. Transaction costs can be considered as deadweight losses, which reduce efficiency (Buitelaar, 2004). On the other hand, transaction costs are usually not distributed equally among the parties involved in an implemented policy (Coggan et al., 2013a). In addition, these costs vary over the life cycle of the policy. Therefore, the level and distribution of transaction costs might have a considerable effect on the efficiency and equity of the policy. In other words, through decreasing transaction costs, planning policy instruments can be designed and implemented in a more efficient and equitable manner. While many researchers acknowledge the importance of transaction costs in explaining policy outcomes (Moxey et al., 1999, Latacz-Lohmann and Van der Hamvoort, 1998), there has been little analysis on how to include transaction costs and other institutional aspects as evaluation criteria in planning policy design and analysis in practice. According to Falconer and Saunders (2002), omitting transaction costs from policy design and analysis might lead to the design and implementation of sub-optimal schemes and policies.

The goals of this paper are; firstly, to highlight the importance of taking account of transaction costs, as well as other institutional aspects, as evaluation criteria in planning policy design and analysis, aiming to increase the efficacy of policy instruments; secondly, to propose a framework whereby planners can incorporate transaction costs in their policy design and analysis. To this end, firstly we discuss, in general terms, the intersection of transaction costs, planning and policy analysis, before giving particular consideration to how planning can benefit from the extensive literature on Transaction Cost Economics (TCE). This paper also investigates when, and in what stages, transaction costs can be included in planning policy design and analysis. Finally, through proposing a framework, this paper aims to present how to take transaction costs into account when evaluating planning policy instruments. The use of the proposed framework advances the ability of planners to evaluate and compare planning policy instruments through the lens of TCE, in order to enhance their efficiency and equity.

2. Transaction Costs, Planning and Policy Analysis

There has been an increasing use of the term ‘institution’ in social sciences over the last few decades. According to North (1990), institutions are the ‘rules of the game’ and they ‘reduce uncertainty by providing a structure to everyday life.’ The focus on institutions has its roots in Coase’s (1937) seminal paper ‘The Nature of the Firm’ and has shaped a branch in economics coined as New Institutional Economics (NIE) by Oliver Williamson (Coase, 1998). As an ‘interdisciplinary’ field, the NIE aims to understand and explain what institutions are, how they are created, what their purposes are, how they alter, and how they should be reformed (Klein, 1998). Transaction costs are one of the central concepts and significant contributions in NIE. The principle that institutions and institutional arrangements should be created, changed, or used to minimise the transaction costs of production and exchange process is at the heart of NIE (Coase, 1937, Williamson, 1985, North, 1990). The emphasis of NIE on transaction costs helps inform how institutions are devised or shaped in order to eliminate or minimise these frictions and uncertainties that together create transaction costs (Adams et al., 2008).

According to Williamson (1998), the transaction is the ‘basic unit of analysis’ in TCE. He defines a transaction as a transfer of property rights regarding goods or services (Williamson, 1996). Similarly, Buitelaar (2007, p.24) refers to a transaction “as a legal action to increase (or take) control over property rights.” The transfer of property rights might occur partially (e.g. in the case of Transferable Development Rights (TDR) programs, in which only the right to develop is subject to transfer) or completely (e.g. in the case of compulsory purchase or eminent domain that requires the transfer of all ‘bundles of rights’). Other than goods and services, the transfer of information, knowledge, and ideas can also be considered as a transaction. Transactions differ in terms of their own attributes, as well as the characteristics of agents involved in a transaction, which will be discussed in the following sections. Public policies and their associated processes are usually associated with high levels of transaction costs (McCann, 2013, Falconer, 2002). From the perspective of TCE, the activities associated with public policies can be conceived as a series of transactions. For example, a Compulsory Purchase Order (CPO) can be broken up into a series of transactions, such as, inter alia, information collection, public meetings, making objections, valuations, and claiming compensation. The involvement in such transactions creates transaction costs. There is no consensus among the new institutional economists regarding the definition of transaction costs (Dollery, 2001). However, they are often defined as costs involved in transactions, other than the sale price. In other words, all the costs that are not directly related to the production of a product (Nilsson and Sundqvist, 2007, Webster and Lai, 2003). This paper will use a more comprehensive definition of transaction costs, presented by Marshall (2013, p.188), “transaction costs are the costs of the resources used to: define, establish, maintain, use and change institutions and organisations; and define the problems that these institutions and organisations are intended to solve.”

Although the concept of transaction costs is not new, its introduction into planning literature is much more recent. This concept was introduced into planning theory for the first time by Alexander in his paper ‘A Transaction Cost Theory of Planning’ in 1992. Alexander (1992) argues that planning can be considered as a process of co-ordination through the lens of TCE or NIE. It is believed that organisational structure is an important part of co-ordination. Therefore, institutional design is an integral step and a necessary supplement to co-ordinate planning processes. He explains that if an agent or organisation aims to implement some strategies and fulfil some objectives, it has to plan its execution in detail, including interaction with other agents that may have different interests. This argument is also in line with Lai’s (2005, p.11) explanation of urban planning defined as “an institutionalised control of spatial manifestations of human activities.” Lai discusses that planning, as

a state institution, is a development rationing mechanism. Planners are involved with the collection and interpretation of information in order to manage development. Institutions or institutional arrangements, as outcomes of public decisions, help planners to reduce the transaction costs. However, designing institutions in planning is an ever-changing process, in which an institution will be replaced by a more efficient option, if it fails to reduce the transaction costs (Lai, 2005, North, 1990).

Since the introduction of transaction costs into planning literature, some researchers have attempted to view planning theory and practice from the perspective of TCE. For example, Lai and Tang (2016) analyse institutional barriers to the redevelopment of urban villages in China by employing TCE. Aiming to analyse the process of farmland conversion, Tan et al. (2012) consider the process as series of transactions. Likewise, Cho (2011) discusses how the housing redevelopment process involves various identifiable transactions, which he analyses in a Korean context. Using TCE, Buitelaar (2004), proposes a framework for comparing institutional arrangements in co-ordinating the land development process. Needham and de Kam (2004), on the other hand, explore how land is exchanged by highlighting the co-ordination between suppliers and demanders through the perspectives of TCE.

Despite increasing studies on transaction costs, and other institutional aspects, in the planning literature (Kauko, 2012, Buitelaar, 2007, Staley, 2001, Dawkins, 2000, Jaffe, 1996), there is little literature concerning policy design and analysis from the perspective of transaction costs. However, as McCann (2013) discusses, transaction costs should be one of the key factors in any public policy analysis, in particular policies which are likely to generate significant and high levels of transaction costs (Marshall, 2013, Garrick et al., 2013a). Additionally of concern is how the magnitude and distribution of transaction costs can affect the efficiency and equity of a planning policy instrument. According to Coggan et al. (2010), the influence of transaction costs vary between parties involved in a policy and their relative significance depend on the actions and interactions of and between them. On the other hand, achieving efficiency objectives by policy instruments requires a better understanding of these influences. This understanding can improve *ex-ante* policy selection and *ex-post* policy analysis (McCann et al., 2005). Therefore, planning policy design and analysis, particularly, can benefit from taking transaction costs into account through:

- Enhancing the efficiency and equity of policy instruments. The efficiency of policy can be increased through reducing the direct and indirect costs of designing and implementing policy instruments. Also, considering the distribution of such costs among the parties involved may lead to a higher level of equity in the policy outcomes.
- Providing some criteria to assess alternative policy choices and scenarios in *ex-ante* evaluation, as well as to assess policy outcomes in *ex-post* evaluation. This approach not only decreases the level of subjectivity in the evaluation process, but also enables planners to develop a set of criteria to avoid evaluating the policy instruments merely based on some value judgments.
- Designing more practical policy instruments, which are easier to administer for local authorities and simpler to understand for people involved in the policy. High levels of transaction costs can reduce policy participation (Falconer and Saunders, 2002).
- Bringing in some practical issues, such as, conflict of interests or lobbying (McCann, 2013), whereby it can increase the credibility of the planning activities, in general, and the planning policy instruments, in particular.
- Considering unintended consequences of implementation of a policy. One of these consequences can be the issue of path dependence or lock-in, that is, the effect of the policy

on the cultural norms and the institutional environment (Garriick et al., 2013b, Crase et al., 2013).

- Providing the basis for including different aspects of the institutional environment, such as, the cultural, political and legal contexts (McCann, 2013). Such contexts can affect the policy choice, design and implementation in terms of feasibility of the policies and their social and political acceptability.

3. Integrating Transaction Costs into Planning Policy Analysis

3.1. Timing of Planning Evaluation and Transaction Costs

According to Lichfield and Prat (1998), despite differences in each country's planning system and legal framework, the planning process should address three stages, which are the preparation, implementation, and revision of plans. Also, these stages in the planning process should correspond to related stages in planning evaluation concerned with the timing of evaluation. The time dimension refers to the planning and evaluation process and the order of tasks in the process. Evaluation can be undertaken in different stages of the planning process; before, during, or after implementation (Alexander, 2012, Oliveira and Pinho, 2010). Evaluation before implementation of a policy is usually called *a priori* or *ex-ante*. Ongoing evaluation or evaluation in progress/process is another type of evaluation, which is simultaneously undertaken during implementation of a policy. *Ex-post* (or *ex-post facto*) evaluation occurs at the end of the plan implementation process and focuses on assessing or measuring the impacts and effects of the implemented policy in order to evaluate its outcomes. Recognising the differences in the time dimension also assist with evaluation for different purposes. While in *ex-ante* evaluation, planners are interested in estimating the potential impact of implementation of the policy in future, in ongoing evaluation, they intend to monitor implementation and assess conformity of the policy with its specified objectives, which can include long-term goals or interim deadlines. On the other hand, the main purpose of *ex-post* evaluation is learning from past experiences in order to use these lessons for future plans or policies (Bennear and Coglianese, 2005).

Table 1 presents our view of how planners can take transaction costs into account in different types and stages of the planning evaluation process. The costs occurring before the actual transaction are considered *ex-ante* costs, while *ex-post* costs are the costs that arise after the actual transaction (McCann et al., 2005). The incorporation of transaction costs in the *ex-ante* evaluation process provides planners with a sense of comparison between different alternatives and scenarios to be chosen for the future, based on their potential and estimated transaction costs. In other words, among other criteria, planners can also consider the related transaction costs of each policy option in order to select the least costly policy choice. *Ex-ante* estimation and evaluation of transaction costs also enables planners to decrease such costs through reviewing the policy design and institutional arrangements from a TCE perspective. In ongoing evaluation, on the other hand, measuring transaction costs of a policy, which can be undertaken concurrently with policy implementation, may reveal the need to modify the policy institutional design and arrangements. These modifications or shifts can lead to better policy outcomes and results. Finally, through considering transaction costs in *ex-post* evaluation, policy analysts can measure such costs in the whole process of designing and implementing a policy. It also enables them to gain a better understanding of which factors influence transaction costs in a policy and why such costs arise. Reviewing the literature on transaction costs in environmental and agricultural policies show that many researchers attempt to measure these costs within ongoing or *ex-post* evaluation processes (Jaraite et al., 2010, Coggan et al., 2015, Falconer and

Saunders, 2002, McCann and Easter, 2000). However, estimating transaction costs as part of *ex-ante* evaluation process is ‘both feasible and useful’ (McCann et al., 2005).

Table 1: Different types of transaction costs according to timing in evaluating planning policy instruments

Planning Process		Planning Evaluation Types	Transaction Costs Types	Examples of activities creating transaction costs
Preparation	Decision Making	<i>Ex-ante</i> Evaluation	<i>Ex-ante</i> Transaction Costs	Research and Information Evaluating Policy Choices Policy Selection Enactment or Litigation Policy Design and Preparation Zoning Ordinance Modification Institutional Establishment Public Education
Implementation	Monitoring	Ongoing Evaluation	Ongoing Transaction Costs	Support and Administration Contracting Monitoring Prosecution and Enforcement
Revision	Outcomes	<i>Ex-post</i> Evaluation	<i>Ex-post</i> Transaction Costs	Data Collection Evaluating Policy Outcomes Policy Changes Policy Re-design

Another time-related consideration of studying transaction costs in planning policy design and analysis is that these costs vary across time. In other words, the type, magnitude and distribution of transaction costs are not equal for each stage of policy design and implementation and vary over the life cycle of the policy (Falconer et al., 2001, Coggan et al., 2010). One can make a distinction between transaction costs experienced before and after a policy decision is made, as well as different types of transaction costs before and after implementation. Transaction costs can be significant in initial policy design and implementation stages. For example, Fang et al. (2005) found that 65% of the transaction costs of a water quality trading scheme were incurred before any actual transaction or trade took place. Before making a policy decision, planners may be involved with activities, such as, information collection, information provision, and public meetings, whereas after a policy decision, they might be involved with the process of enactment, enabling legislation, institutional establishment, and public education. Transaction costs are incurred as a result of conducting all of these activities, nevertheless, the type, magnitude and distribution of these costs can widely vary. Therefore, in order to adequately analyse transaction costs of a planning policy, all stages of policy design and implementation should be considered.

It should also be recognised that the transaction costs associated with different stages of policy design and implementation can be interrelated. For example, although involvement and participation of different parties and stakeholders in initial stages of policy design might increase transaction costs of policy design (Mettepenningen et al., 2011), it might lower transaction costs of policy implementation through building trust between parties involved in the policy. Similarly, decision makers might incur higher transaction costs in order to design more precise and targeted policy instruments, but implementation of such policy instruments might be associated with lower transaction costs (Falconer and Saunders, 2002). On the other hand, transaction costs of a policy instrument may be reduced over time due to a ‘learning by doing’ effect (Arrow, 1962). In other

words, past experiences of parties involved in a policy can help them to decrease the time and effort required for participation in the policy or transaction.

3.2. A Framework for Evaluating Transaction Costs in Planning Policy Instruments

Although there is no evidence of research on the factors that influence transaction costs in planning policy instruments, there are some studies that have examined such influencing factors in other policy areas, such as, environmental, agricultural, and natural resource policies. Table 2 presents our summary of the factors influencing transaction costs in policy instrument design and application. McCann (2013), for example, distinguishes between physical factors and cultural and institutional environment factors affecting transaction costs in environmental and natural resource policies. She discusses that while some of these factors might not be amenable to change or be the object of the policy design, other factors might be amenable or somewhat amenable to change. Those amenable to change are culture and institutional environment factors, whereas sequencing, timing and intermediaries are examples of somewhat amenable factors. Ducos et al. (2009) and Ducos and Dupraz (2007), on the other hand, consider five 'pure determinants of transaction costs' in agri-environment schemes - including trust, uncertainty, bounded rationality, utility and similarity of transactions - where the first three are considered as factors only influencing the transaction cost function, while the last two have more complex effects, i.e. influencing the agents' utility and profit functions. They find that distrust in government, uncertainty and non-similarity of the transactions (also considered as asset specificity) had a particularly notable influence on transaction costs.

Alternatively, Mettepenningen et al. (2011) distinguish four main categories that influence transaction costs in agri-environmental schemes, including: 1) factors relating to the actors involved, 2) the characteristics of the schemes, 3) the institutional environment in which the schemes are designed and implemented, and 4) the natural environment upon which they are designed to act. Regarding the factors relating to the actors involved, they mention the number of trading partners involved, the heterogeneity of the actors, trust between parties, common ideology between the partners, and agents' level of education and past experience. In terms of the characteristics of the scheme, Mettepenningen et al. (2011) argue that the precision of the scheme and being specifically targeted, the scope of the scheme, the degree that the agents cooperate in the scheme, the monitoring approach of the scheme and its transaction frequency, are the influencing factors. The third category of influencing factors relates to the extent that different political parties are involved in the design of the scheme and the level of decentralisation of the administration. Finally, the condition of natural environment influences transaction costs in the design and implementation of the schemes.

In another categorisation of transaction costs influencing factors, Nilsson (2009) distinguishes between the factors which are unavoidable, and the factors which should not affect transaction costs. While the former factors are referred as technical factors, the latter ones are considered as political factors. Technical factors, which should reasonably affect transaction costs in agri-environmental policy measures include the number of plans created by the county administrative boards, differences in the size of counties and high-quality lands, transportation costs and timing. Political factors consist of population size, density and average age, unemployment rate, and income. Coggan et al. (2013), on the other hand, suggest their framework to analyse the factors that influence transaction costs in development offsets as an environmental policy. They view transaction costs in environmental policy as influenced by four categories; 1) transaction characteristics, including the degree of asset specificity, uncertainty surrounding transactions, and transaction frequency; 2) transactor

characteristics, including broad past experience, opportunism, trust and confidence in information shared between parties, common preferences, and community of practice; 3) nature of the institutional environment; and 4) nature of the institutional arrangements. They conclude that all of these theory-based factors influence transaction costs in two Australian offset schemes they studied. However, the degree of influence of each factor is different and the degree that these factors influence transaction costs in these offset schemes vary across different agents involved.

Table 2: Factors influencing transaction costs in public policy instruments according to transaction costs literature

Researcher(s)	Categories	Factors
McCann (2013)	Physical factors	Least amenable to change, such as, scale and time lags, Somewhat amenable to change, such as, magnitude of change and heterogeneity, Amenable to change, such as technical change
	Cultural and institutional environment factors	Least amenable to change, such as, culture and institutional environment, Somewhat amenable to change such as, lobbying and market structure, Amenable to change, such as sequencing and intermediaries
Ducos and Dupraz (2007) Ducos et al. (2009)	Factors impacting on the transaction cost function only	Trust, Bounded rationality, Uncertainty
	Factors with more complex effects	Utility in the transaction, Similarity of transactions (technology similarity)
Mettepenningen et al. (2011)	Factors relating to the actors involved	Number of actors involved, Heterogeneity of the actors, Trust between parties, Common ideology between the partners, Agents' level of education and past experience
	Characteristics of the schemes	Precision of the scheme and asset specificity, Scope of the scheme, Agents' cooperation in implementing the scheme, Monitoring approach, Age of the scheme
	Institutional environment	Political involvement in the design of the scheme, The level of decentralisation of the administration
	Natural environment	The condition of the natural environment
Nilsson (2009)	Technical factors	The number of plans created by the boards, Differences in the size of counties, Differences in the amount and share of high quality lands, Transportation costs, Timing
	Political factors	Population size, density and average age, Unemployment rate, Income
Coggan et al. (2013a)	Transaction characteristics	Degree of asset specificity, Uncertainty surrounding transactions, Transaction frequency
	Transactor characteristics	Broad past experience, Opportunism, Trust and confidence in information shared between parties, Common preferences, Community of Practice
	Nature of the institutional environment	The formal and informal legal, social and political rules that determine the context within which economic activity takes place
	Nature of the institutional arrangements	The way exchange of goods and services is co-ordinated

Using the literature on transaction costs and NIE, this paper proposes a framework that can be applied to aid the analysis of transaction costs in planning policy instruments. Although this paper focuses on planning policy instruments, the proposed framework can also be applied in analysing instruments in other policy areas, such as, environmental, agricultural, and natural resource policies. The framework proposed in this study consists of a typology of various transaction costs influencing factors and categories that are generalisable across policy instruments. As outlined in Table 3, we

suggest that transaction costs influencing factors in the design and implementation of planning policy instruments, as well as other public policy instruments, can be classified into three categories; 1) characteristics of the transaction; 2) characteristics of the transactors; and 3) characteristics of the policy. While the transaction and transactor characteristics are included in some of the existing classifications of transaction costs literature, they do not sufficiently incorporate characteristics of the policy itself. Therefore, we add a ‘policy characteristics’ category to emphasise the importance of policy selection and design in terms of the transaction costs of a policy instrument. The policy characteristics, such as simplicity (Pannell et al., 2013), age of the policy (Falconer et al., 2001, Mettepenningen et al., 2011), precision of the policy (Peerlings and Polman, 2008, Rørstad et al., 2007), policy approach (Coggan et al., 2013a), public involvement and participation, and policy credibility and consistency, can affect transaction costs in any policy.

The policy characteristics can be considered as components of the institutional environment and institutional arrangement. According to Davis et al. (1971, p.6-7), “the institutional environment is the set of fundamental political, social and legal ground rules that establishes the basis for production, exchange and distribution..., [whereas] an institutional arrangement is an arrangement between economic units that governs the ways in which these units can cooperate and/or compete.” Williamson (1985, 2000) assumes the institutional environment as a given and only focuses on the institutional arrangements. Such an assumption does not incorporate the effects of the institutional environment on the related institutional arrangements, transactions, transactors, and, consequently, transaction costs (Coggan et al., 2013a, North, 1990). It is particularly problematic when it comes to analysing public policies or planning practices (Buitelaar, 2007). Given planning policies and practices control the ‘rights over land within certain spatial confines’ (Lai, 1994), they can be seen as a key element of the institutional environment/arrangement of the land markets (Alexander, 2001b). McCann (2013) argues that the changes in the institutional environment and institutional arrangement should be considered in the policy design process. She divides the factors that affect transaction costs into three categories of: the factors that are least amenable to change; the factors that are somewhat amenable to change; and the factors that are amenable to change. Likewise, in line with Alexander (2005), Buitelaar (2007) distinguishes three different, but related, institutional levels, namely, micro-, meso-, and macro-level institutions. The micro-level institutions are institutional arrangements or governance structures, by which the exchanges of rights are co-ordinated. The meso-level institutions create ‘the rules of the game’ and include land policies and practices. And finally, the macro-level institutions refer to ‘social and cultural norms and values’. The characteristics of policy suggested in this paper are mainly related to the meso-level institutions.

Moreover, concerning the transaction characteristics, we adopt three factors of asset specificity, uncertainty, and frequency in line with the works of Oliver E. Williamson (1975, 1981, 1985, 1993a, 1996, 1998), one of the main contributors of TCE theory. However, we modify the terminology of these characteristics based on the planning literature regarding the implications of TCE in planning. Using Alexander’s (2001a, 2001b) suggestions, we adopt the broader concepts of interdependence and timing, instead of the factors of asset specificity and frequency. We also augment the transaction characteristics category with the addition of two factors: the number of agents involved in transactions and the involvement of intermediaries. It should be noted that the suggested factors might be interrelated. Where the interrelations between suggested factors exist, the type and direction of the relationship is presented.

Table 3: A framework to evaluate transaction costs in planning policy instruments

Categories	Factors	Types of Influence on Transaction Costs
Transaction characteristics	Interdependence (asset specificity)	Upward
	Uncertainty surrounding transactions	Upward
	Timing (duration and frequency)	Upward/Downward
	Number of agents	Upward
	Involvement of intermediaries	Upward/Downward
Transactor characteristics	Past experience	Downward
	Opportunism	Upward
	Trust between parties	Downward
	Common preferences	Downward
	Social connectedness	Downward
Policy characteristics	Simplicity	Downward
	Age of the policy	Downward
	Precision of the policy	Upward/Downward
	Policy approach	Upward/Downward
	Public involvement and participation	Upward/Downward
	Policy credibility and consistency	Downward

3.2.1. Transaction characteristics

According to Williamson (1981, 1996, 1998), characteristics of a transaction can be defined with respect to its ‘asset specificity’, ‘uncertainty’, and ‘frequency’. Likewise, Alexander (2001a, 2001b) considers ‘interdependence’, ‘uncertainty’ and ‘timing’ as the key transaction dimensions. Asset specificity is a “specialised investment that cannot be redeployed to alternative uses or by alternative users without a loss in productive value” (Williamson, 1996, p.377). Williamson (1985) argues that unlike the neo-classical theories assumptions, in which resources can be infinitely re-deployed and substituted, in the real economy, transactions are often specific and might not be re-deployable for alternative transactions. Therefore, he distinguishes between nonspecific and idiosyncratic transactions. The former refers to a transaction with a low degree of asset specificity, whereas the latter concerns a high degree of asset specificity in a transaction. Alexander defines asset specificity as a special case of interdependence. Besides asset specificity, the concept of interdependence also includes the costs of organisational and inter-organisational co-ordination. He believes that interdependence, as a broader concept, would be more applicable to public land-use planning. Asset specificity has a positive association with transaction costs. In other words, increased asset specificity increases transaction costs. Various forms of asset specificity are suggested by different researchers, including, *inter alia*, physical assets, site specificity, dedicated assets, brand name capital, and temporal specificity (Williamson, 1998), time of production (Masten et al., 1991, Malone et al., 1987), human asset specificity and procedural asset specificity (Zaheer and Venkatraman, 1995).

Uncertainty is also considered as a characteristic of the transaction. One major cause of uncertainty is information-impactedness, that is, limited information and/or asymmetric information (Dixit, 1996, Alexander, 2001b, Williamson, 1975). Carson et al. (2006), distinguish between volatility and ambiguity as two different aspects of uncertainty. They see volatility as being concerned with the rate and unpredictability of change in market conditions over time, thereby creating uncertainty over future conditions. On the other hand, they define ambiguity as being “the degree of

uncertainty inherent in perceptions of [market conditions] irrespective of its change over time” (Carson et al., 2006, p.1059). In other words, while volatility concerns uncertain future conditions, ambiguity is about present and past experience. There is a positive relationship between uncertainty and transaction costs; high levels of uncertainty in a transaction increase transaction costs and make establishing a contract more difficult, expensive, and risky (Saussier, 2000). Instead of the term ‘frequency’, used by Williamson, Alexander (2001a, 2001b) suggests ‘timing’, as a factor that affects transaction costs. Alexander discusses that a single and independent transaction would have fewer transaction costs, compared to an ongoing transaction, or one with long-lasting consequences. On the other hand, the factor of frequency is expected to have some considerable impacts on the efficiency of activities. It is likely that the people participating in a policy instrument become more efficient through a ‘learning by doing’ process. In addition, frequent transactions can reduce uncertainty over the transaction as well as create trust between parties involved (Rørstad et al., 2007). Finally, more frequent transactions reduce transaction costs because of the re-use and re-deployment of the collated information and evolved institutions and processes (Williamson, 1985). Likewise, asset specificity might impact the frequency of a transaction. According to Rørstad et al. (2007) asset specificity may have a negative relationship with frequency, in which a high degree of asset specificity leads to low frequency. Therefore, we adopt Alexander’s construct of timing, including duration and frequency, in this study.

As mentioned, we also include two additional factors in the category concerning characteristics of a transaction: the number of agents and involvement of intermediaries. In terms of the number of agents involved in a transaction, by increasing the number of agents involved in a transaction, the total transaction costs would increase, *ceteris paribus* (McCann, 2013, Stavins, 1995, Mettepenningen et al., 2011, Clinch et al., 2008). On the other hand, while the total size of transaction costs increase with the involvement of more agents, transaction costs per participant might decrease (Stavins, 1995, Falconer et al., 2001, Nilsson, 2009). According to the TCE literature, involvement of intermediaries occurs due to the existence of transaction costs. Intermediaries can reduce uncertainty and the costs associated with information collection by providing information/knowledge to those who are willing to participate in a policy instrument (Coggan et al., 2013b, Woodward and Kaiser, 2002, Stavins, 1995, McCann, 2013). In return, they usually charge a fee (such as a brokerage fee). Since a brokerage fee will also be considered as a transaction cost, depending on whether this fee is higher or lower than the transaction costs without an intermediary’s involvement, this factor might have either downward or upward influence on total transaction costs.

3.2.2. Transactor characteristics

According to the literature, the five factors of past experience, opportunism, trust, social connectedness, and common ideology are considered as the characteristics of the transactors (e.g. Coggan et al. 2013a). By introducing the concept of bounded rationality, Nobel Laureate Herbert Simon (1972) argues that while people are rational, they have a limited capacity to acquire and process information. However, through a ‘learning by doing’ effect, agents’ past experiences can improve their ability in decision making and reduce transaction costs (Challen, 2000, Coggan et al., 2013a, Ducos et al., 2009, Libecap, 1989). Nevertheless, bounded rationality, *per se*, would not necessarily cause a high level of transaction costs if all the agents involved were fully trustworthy (Buitelaar, 2007, Williamson, 1993a). However, in real life, people may adapt their actions to take advantage of opportunities and circumstances (e.g. from asymmetric information), which Williamson (1993b) refers as ‘self-interest seeking with guile’ or ‘opportunism’. Williamson states that TCE

acknowledges opportunism and aims at mitigating it in cost-effective ways. These opportunistic behaviours of the transactors, such as, providing false, misleading or incomplete information to the parties, can also increase transaction costs (Coggan et al., 2013a, Falconer and Saunders, 2002, Williamson, 1981).

Trust is another factor influencing transaction costs that concerns the characteristics of the transactors. Trust is an essential element of every transaction (Arrow, 1973). According to Williamson (1993a), ‘the elusive notion of trust’ has several meanings. Gambetta (1988, p.217) states that “trust... is a particular level of the subjective probability with which an agent assesses that another agent or group of agents will perform a particular action, both before he can monitor such action... and in a context in which it affects his own action.” Trust is associated with timing and is presumed to develop over time (Gulati, 1995). Trust and opportunism are also interrelated, in which they can be considered as the opposite of each other (Ducos and Dupraz, 2007). Through limiting opportunism, trust can reduce transaction costs (Coggan et al., 2013a, Mettepenningen et al., 2011, Ducos et al., 2009). However, unconditional trust may result in increasing uncertainties (Buitelaar, 2007). Finally, two factors of social connectedness and common preferences influence transaction costs in a policy instrument. Firstly, a good understanding between the parties as well as common ideology regarding the objectives and approaches of a policy can reduce transaction costs (Coggan et al., 2013a, Mettepenningen et al., 2011, North, 1997). Secondly, social connectedness or membership of a community of practice can lower transaction costs (Coggan et al., 2013a, Morrison et al., 2008) through reducing information collection costs, increasing awareness, promoting connections and building trust.

3.2.3. Policy characteristics

Policy choice, design and implementation have a significant influence on the size and types of transaction costs (Hagemann et al., 2015, McCann, 2013, McCann et al., 2005, Coggan et al., 2010, Falconer and Saunders, 2002, Mettepenningen et al., 2011). Simplicity of policy design and administration is one transaction-cost influencing factor that concerns policy characteristics. By reducing the time and costs of information collection, the simplicity of a policy can decrease transaction costs. Lack of simplicity in the policy design and administration can make the policy too complex and time-consuming to understand, and even discourage people from participating in the policy. Pannell et al. (2013) find that simplifying the process and policy has a significant influence on the design and implementation of environmental policies and can reduce the transaction costs involved. Simplicity of policy design and administration is also considered as a critical success factor in planning policy instruments. A simplified and clearly structured policy makes it easy for local authorities to administer and for the potential participants to understand how it works.

The age of a policy can potentially influence transaction costs. The time and cost of information collection regarding a new policy instrument is usually higher than for an old and well-established one. Similar to the factor of frequency, the age of an active policy can increase the experience of the agents involved, through a learning effect and, consequently, reduce the transaction costs (Falconer et al., 2001, Falconer and Whitby, 1999). According to McCann et al. (2005), history of a policy can play an influential role, in that an efficient new policy might be more costly, compared to a less efficient policy that is in place for a long time. On the other hand, depending on the stage in the lifecycle of the policy, transaction costs may vary. These costs might be either higher or lower in the first phases of designing or implementing of a policy, compared to the later stages (Kuperan et al.,

2008, Falconer et al., 2001, McCann et al., 2005). Moreover, the precision of the policy can also be considered as a transaction costs influencing factor. According to Peerlings and Polman (2008) and Rørstad et al. (2007), designing more precise and targeted policy instruments increase transaction costs related to the policy design process. However, as Falconer and Saunders (2002) point out, the higher costs for designing more targeted policy instruments can be compensated by lower costs in the implementation stage.

The magnitude and distribution of transaction costs among agents involved varies depending on the policy-instrument approach. There are two main approaches towards intervening in the market and regulating externalities in planning and environmental policy, namely, traditional regulatory approaches (also called the ‘command and control’ instruments) and the market-based approach. These approaches are also in line with Williamson’s (1989) three forms of private-sector governance; i.e. market, hybrid and hierarchy. Likewise, Alexander (2001a) describes two forms of governance; third-party governance (administrative support) and bilateral governance (market support). These approaches use different means or instruments to achieve their goals (Stavins, 2001). According to Coggan et al. (2010), the influences of transaction costs vary between policy instruments based on their different approaches.

The extent to which the public has been involved, and participated in, the policy choice, design and implementation stages, is another transaction-costs influencing factor concerning the characteristics of the policy. This influence could be either upward or downward. According to Mettepenningen et al. (2011), the involvement of societal groups and political parties in the design of the scheme, ranging from giving advice to making decisions, would increase transaction costs because of conflicting opinions. In addition, lobbying over a policy may result in increasing transaction costs at both enactment stage and bureaucratic level (McCann, 2013). On the other hand, public involvement and participation also can have a downward influence on the total transaction costs of a policy, through promoting trust, social connectedness, and common preferences as well as playing an educational role among the stakeholders (Morrison et al., 2008, Mettepenningen et al., 2011, Coggan et al., 2010). Finally, policy credibility and consistency has a downward influence on the transaction costs of a policy. Policy credibility can be defined as “the expectation that an announced policy will be carried out” (Drazen and Masson, 1994, p.1). In other words, that is the quality that people are confident that rules, regulations, and policies are not going to change easily or in a short period of time. Policy credibility and consistency can reduce transaction costs through decreasing uncertainty over the policy and transaction, as well as building trust between the government and the agents involved in the policy.

As discussed, the transaction costs framework proposed in this paper presents a typology of different categories and factors that influence transaction costs. Analysing transaction costs by categorising their various influencing factors enables analysts to ensure that all relevant influences have been accounted. The framework provides not only a theoretical construct by which transaction costs can be evaluated, but also a basis for further empirical research on the type, timing, distribution, and magnitude of such costs. It also helps to compare different types of policy instruments, since they may be associated with different combinations of influencing factors. The analysis of transaction costs of a planning policy instrument, as one of the evaluation criteria, is a multi-step process. According to TCE, the activities associated with the design/implementation of a policy instrument can be considered as a series of transactions. Thus, the first step is to identify the relevant transactions, as the ‘basic units of analysis’, through breaking up the policy design/implementation process into a series of transactions. The next step is to identify the parties involved in each transaction (i.e. transactors). Then, using the proposed framework, the effects of each factor on each identified transaction among

different parties involved need to be examined. Analysing these transaction costs influencing factors is particularly important, given that the effects of each factor may vary across the parties involved in a policy, and different transactions in the lifecycle of a policy instrument may be associated with different combinations of influencing factors (Shahab et al., 2017c). Box 1 uses the Compulsory Purchase Order (CPO) regime in Ireland as an illustrative example in order to demonstrate briefly how planners can apply the transaction costs framework in practice.

Box 1. The application of the transaction costs framework in analysing Compulsory Purchase Orders (CPOs)

Compulsory purchase of property can be considered as a planning policy instrument, whereby statutory authorities can purchase private land or property for some public purposes, even without the consent of the owner. In other words, private parties might be obliged to participate and such land acquisition may not be conducted voluntarily (Grover, 2014). Compulsory purchase, or similar policy instruments, are executed in many countries. In Ireland, for example, a local authority can be authorised via a Compulsory Purchase Order (CPO) to purchase land in order to implement urban development plans, road schemes, and other public and infrastructure projects (Planning and Development Act, 2000). In recent years, for example, CPOs have been used for road schemes, housing, light rail (the Luas) and water infrastructure projects. A CPO process starts when a statutory body decides to make a CPO. The order has to be submitted to the Planning Board (An Bord Pleanála) for confirmation, and affected parties have to be notified. Subsequently, it is the norm that affected parties hire legal and chartered surveying expertise to help throughout the CPO process, including providing valuations and assisting in making objections and claiming compensation. After reaching an agreement, acquisition will be finalised and compensation will be paid (SCSI, 2017).

From the perspective of TCE, the process of executing a CPO involves a series of transactions, which are normally associated with significant transaction costs. The main transactions are applying for planning consent, notifying affected parties, compensation valuations, and negotiation over the amount of payment. These transactions can be broken up into a further set of transactions. For example, negotiation over the amount of payment can be further divided into a set of transactions, such as, information collection, preparing and lodging a claim, and hiring attorneys, valuers, and surveyors. Nevertheless, decomposing the transactions need to be continued only according to the research questions/objectives (Tan et al., 2012).

In order to gain a better understanding of which factors influence transaction costs in CPOs, we can apply the transaction costs framework proposed in Table 3. The effects of each transaction costs influencing factors may vary across identified transactions, as well as among the parties involved in a CPO process. In terms of the transaction characteristics, CPOs require the acquiring authority to pay a fair compensation to ensure the affected parties are left in the same financial position after the CPO. Transactions involved with compensation valuation require extensive information-collection activities that increase the transaction costs of CPOs. Since the collected information cannot be redeployed to other transactions, CPO transactions may have a high level of asset specificity. Moreover, the CPO process and compensation valuation might be associated with a high level of uncertainty. For the affected parties, uncertainties concern what the CPO process is, how to make objections, and what the level of compensation is. Services provided by lawyers and chartered surveyors decrease uncertainties

and information collection time for the property owners. However, it increases the transaction costs of acquiring authorities, since the fees charged by the experts are part of the claim for compensation. Where a group of owners are involved, transaction costs are higher, due to increased time and effort associated with negotiations, compared to those CPO transactions where a single owner is involved.

The characteristics of transactors can also influence the transaction costs of CPOs. While affected private owners usually have no past experience with CPO transactions, acquiring authorities and, for example, chartered surveyors have normally completed several transactions. These past experiences can help parties involved reduce the time and effort they have to invest in each transaction. One of the main sources of transaction costs in CPO transactions can be the potential for opportunism. Parties involved in the transactions might show rent-seeking behaviours through underestimating or overestimating the value of property, and consequent compensation. For example, it is reported that in order to gain a higher amount of compensation, some affected parties used ‘Ransom Strip¹’ (DTTAS, 2008). Such opportunistic behaviours increase transaction costs through increasing the time and efforts that have to be put into negotiations and completing transactions. On the other hand, trust between the parties involved can decrease transaction costs by shortening the negotiation time and effort regarding the level of compensation. Common preferences, in which the affected parties believe that there is a need for a CPO in order to implement a public project, can have considerable downward influences on the transaction costs of CPOs.

In terms of the policy characteristics, the simplicity of the CPO design and administration can streamline the process and reduce the required information collection time and effort for the parties involved. A simplified CPO administration process decreases uncertainties surrounding transactions associated with CPOs. In Ireland, CPOs are not a new policy instrument, rather they have been executed for several decades in order to develop public projects and infrastructure (NRA, 2017). This characteristic of CPOs can have a downward influence on transaction costs through raising public awareness and knowledge, building trust between parties, and increasing the credibility of the policy instrument. Finally, the legal principles regarding the CPO process in Ireland have not significantly changed over the last few decades. Such consistency in the application of CPOs can decrease transaction costs by providing stakeholders with higher levels of certainty and increasing the level of institutional knowledge transferability.

In summary, identifying different transactions, along with parties, involved in a CPO process, and examining the influences of each factor on the associated transaction costs, provide a basis for further research on the type, timing, distribution, and magnitude of such costs. Gaining a better understanding of such transaction costs enables planners to design and implement planning policy instruments, such as CPOs, in a more efficient, equitable, and effective manner.

1. Ransom Strip refers to a practice whereby a property owner “retain a key piece of land vital to the construction of a road, and use that leverage to gain a price greater than market value (DTTAS, 2008, p.97).

4. Summary and Conclusions

Evaluation is an integral part of the planning process (Lichfield, 2001a). Planners are required to evaluate their plans and policies for two main reasons. Firstly, it is important that planners can do more than simply distinguish a good plan/policy from a bad plan/policy. Rather, they should be able to define what a good plan/policy should comprise (Baer, 1997). Therefore, clear evaluation criteria are important for those involved in planning to devise and implement ‘good plans and policies’. Secondly, in order to defend the ‘credibility’ of planning as a discipline or a profession, planners need to show the positive outcomes of their activities (Alexander and Faludi, 1989). Planning evaluation enables planners to evaluate the results and outcomes of their activities and verify the positive impacts of their plans and policies. Moreover, adoption of evaluation criteria can assist policymakers in decreasing the level of subjectivity in the evaluation process and avoid evaluating plans and policies based on vague value judgments. Whilst various evaluation methodologies consisting of different evaluation criteria have been proposed, such criteria are not always supported by a strong theoretical foundation (Shahab et al., 2017b). To help address this concern, we advance the literature in this paper by identifying how TCE can provide planning policy with normative criteria that can shed light on the challenges of designing and implementing planning policy instruments from an institutional perspective. Moreover, such normative criteria offer policy analysts a framework or guideline to distinguish a ‘good’ policy instrument from a ‘bad’ one.

Planners employ different policy instruments to influence development patterns so as to improve societal welfare by decreasing undesirable spill-over effects. As a form of market interventions, the use of planning policy instruments can be justified where market failure gives rise to spatial externalities (Clinch and O'Neill, 2010b). However, these interventions are not costless and involve many transaction costs. From an economic perspective, planning can be understood as a way of internalising externalities and dealing with market failures (Lai, 1994, Micelli, 2002). Nevertheless, the benefits of its implementation and enforcement should exceed its costs (Clinch and O'Neill, 2010a). Costs arising include both administrative and information costs. On the one hand, intervention into the market can be costly to administer. On the other hand, market intervention can be costly due to information failures and, in order to achieve socially optimal outcomes, planners need to collect and integrate “dispersed bits of incomplete and frequently contradictory knowledge” (Hayek, 1945, p.519). These information collection activities are associated with high transaction costs. Nonetheless, frequently, transaction costs are not accounted for when designing and analysing planning policy instruments.

Since the introduction of the transaction costs concept into planning, some authors have endeavoured to investigate planning and decision-making processes through the lens of transaction cost theory. However, while designing and implementing different planning policy instruments produces different levels of transaction costs, up to now there has been no systematic research on how land-use planners can take into account transaction costs as evaluation criteria in policy instrument *ex-ante* choice and *ex-post* evaluation. This paper set out, in the first instance, to highlight the importance of including transaction costs in the analysis and design of planning policy instruments, and secondly, to propose an evaluative framework whereby planners can analyse the factors that influence transaction costs in these instruments. Accounting for such factors enables policy analysts to develop a better understanding of how transaction costs can affect the efficiency and equity of a planning policy instrument.

The framework we propose in this paper classifies the factors that influence transaction costs in a planning policy instrument into three categories; 1) characteristics of the transaction; 2)

characteristics of the transactors; and 3) characteristics of the policy. A principal contribution of this framework is the development of a category concerned with 'policy characteristics' to highlight the importance of policy choice and design in terms of the overall transaction costs of a planning policy instrument. The paper demonstrates that policy characteristics such as simplicity, age of the policy, precision of the policy, policy approach, public involvement and participation, and policy credibility and consistency, can influence the transaction costs of any policy. Among the factors concerning the transaction characteristics, interdependence (or asset specificity), uncertainty, and number of agents have an upward influence on transaction costs, whereas two other factors, timing (duration and frequency) and involvement of intermediaries, might have either downward or upward influence on these costs. On the other hand, while past experience, trust, common preferences, and social connectedness, as the factors concerning the transactor characteristics, have a downward effect on transaction costs of a planning policy instrument, opportunism has an upward influence, since opportunistic behaviours of transactors can increase transaction costs.

The type, magnitude and distribution of transaction costs vary widely across different planning policy instruments. In other words, different types of policy instruments may entail a different combination of costs, a different significance of costs, and finally a different distribution of costs. For example, one policy instrument might need more enactment or litigation costs, but fewer administration and implementation costs, compared to the other policy alternatives. Also, private parties involved with a policy instrument may incur considerably higher transaction costs compared to those involved in another policy instrument. Therefore, developing a better understanding of the transaction costs of different planning policy instruments is necessary for both policy design and policy implementation. While transaction costs may have a significant impact on outcomes of any policy instruments, considerably more work will need to be undertaken to determine such effects on the efficiency and equity of different planning policy instruments.

Although we believe the analysis of the transaction costs of a policy is necessary, it is important to acknowledge that it is not sufficient to judge the quality of a policy. For example, a policy might have higher levels of transaction costs, but still be more efficient than the other policy alternatives. Similarly, reducing the scale of transaction costs cannot guarantee that the policy would be more efficient or effective. In other words, policy analysis is a multi-step process which requires different criteria. Analysing transaction costs can be considered as one of these steps which can offer valuable insights into policy design and implementation from an institutional perspective. Taking transaction costs into account can improve the comparative analysis of policy instruments. It also can provide policy analysts with assessment tools for evaluating budgetary impacts of policy instruments in their life cycle (McCann et al., 2005). And, perhaps most importantly, this type of evaluation of policies also helps to improve their effectiveness and promote continual improvements in their design and implementation.

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References

- ADAMS, D., DUNSE, N. & WHITE, M. 2008. Conceptualising State–Market Relations in Land and Property: The Growth of Institutionalism – Extension or Challenge to Mainstream Economics? *Planning, Public Policy & Property Markets*. Oxford: Blackwell Publishing Ltd.
- ALEXANDER, E. R. 1992. A Transaction Cost Theory of Planning. *American Planning Association. Journal of the American Planning Association*, 58, 190-200.
- ALEXANDER, E. R. 2001a. Governance and Transaction Costs in Planning Systems: A Conceptual Framework for Institutional Analysis of Land-Use Planning and Development Control - The Case of Israel. *Environment and Planning B: Planning and Design*, 28, 755-776.
- ALEXANDER, E. R. 2001b. A Transaction-Cost Theory of Land Use Planning and Development Control: Towards the Institutional Analysis of Public Planning. *The Town Planning Review*, 72, 45-75.
- ALEXANDER, E. R. 2005. Institutional Transformation and Planning: From Institutionalization Theory to Institutional Design. *Planning Theory*, 4, 209-223.
- ALEXANDER, E. R. 2012. *Evaluation in Planning: Evolution and Prospects*, Ashgate Publishing, Ltd.
- ALEXANDER, E. R. & FALUDI, A. 1989. Planning and plan implementation: Notes on evaluation criteria. *Environment and Planning B: Planning and Design*, 16, 127-40.
- ARROW, K. J. 1962. The Economic Implications of Learning by Doing. *The Review of Economic Studies*, 29, 155-173.
- ARROW, K. J. 1973. *Information and economic behavior*, Cambridge, MA, Harvard University.
- BAER, W. C. 1997. General Plan Evaluation Criteria: An Approach to Making Better Plans. *Journal of the American Planning Association*, 63, 329-344.
- BENNEAR, L. S. & COGLIANESE, C. 2005. Measuring Progress: Program Evaluation of Environmental Policies. *Environment: Science and Policy for Sustainable Development*, 47, 22-39.
- BUITELAAR, E. 2004. A Transaction-cost Analysis of the Land Development Process. *Urban Studies*, 41, 2539-2553.
- BUITELAAR, E. 2007. *The Cost of Land Use Decisions: Applying Transaction Cost Economics to Planning and Development*, Oxford, UK, Blackwell Publishing.
- CARSON, S. J., MADHOK, A. & WU, T. 2006. Uncertainty, Opportunism, and Governance: The Effects of Volatility and Ambiguity on Formal and Relational Contracting. *Academy of Management Journal*, 49, 1058-1077.
- CHALLEN, R. 2000. *Institutions, Transaction Costs, and Environmental Policy: Institutional Reform for Water Resources*, Edward Elgar Publishing.
- CHO, C.-J. 2011. An Analysis of the Housing Redevelopment Process in Korea through the Lens of the Transaction Cost Framework. *Urban Studies*, 48, 1477-1501.
- CLINCH, J. P. & O'NEILL, E. 2010a. Assessing the Relative Merits of Development Charges and Transferable Development Rights in an Uncertain World. *Urban Studies*, 47, 891-911.
- CLINCH, J. P. & O'NEILL, E. 2010b. Designing Development Planning Charges: Settlement Patterns, Cost Recovery and Public Facilities. *Urban Studies*, 47, 2149-2171.
- CLINCH, J. P., O'NEILL, E. & RUSSELL, P. 2008. 'Pure' and 'impure' Coasian solutions in planning. *TPR: Town Planning Review*, 79, 623-649.
- COASE, R. H. 1937. The Nature of the Firm. *Economica*, 4, 386-405.
- COASE, R. H. 1998. The New Institutional Economics. *American Economic Review*, 72-74.
- COGGAN, A., BUITELAAR, E., WHITTEN, S. & BENNETT, J. 2013a. Factors That Influence Transaction Costs in Development Offsets: Who Bears What And Why? *Ecological Economics*, 88, 222-231.
- COGGAN, A., BUITELAAR, E., WHITTEN, S. M. & BENNETT, J. 2013b. Intermediaries in Environmental Offset Markets: Actions and Incentives. *Land Use Policy*, 32, 145-154.
- COGGAN, A., VAN GRIEKEN, M., BOULLIER, A. & JARDI, X. 2015. Private Transaction Costs of Participation in Water Quality Improvement Programs for Australia's Great Barrier Reef: Extent, Causes and Policy Implications. *Australian Journal of Agricultural and Resource Economics*, 59, 499-517.

- COGGAN, A., WHITTEN, S. M. & BENNETT, J. 2010. Influences of Transaction Costs in Environmental Policy. *Ecological Economics*, 69, 1777-1784.
- CRASE, L., O'KEEFE, S. & DOLLERY, B. 2013. Talk is Cheap, or is it? The Cost of Consulting About Uncertain Reallocation of Water in the Murray–Darling Basin, Australia. *Ecological Economics*, 88, 206-213.
- DAVIS, L. E., NORTH, D. C. & SMORODIN, C. 1971. *Institutional Change and American Economic Growth*, CUP Archive.
- DAWKINS, C. J. 2000. Transaction Costs and the Land Use Planning Process. *Journal of Planning Literature*, 14, 507-518.
- DIXIT, A. K. 1996. *The Making of Economic Policy: A Transaction-Cost Politics Perspective*, Cambridge, MA, MIT Press.
- DOLLERY, B. 2001. New Institutional Economics and The Analysis of The public Sector. *Policy Studies Review*, 18, 185-211.
- DRAZEN, A. & MASSON, P. R. 1994. Credibility of Policies Versus Credibility of Policymakers. *The Quarterly Journal of Economics*, 109, 735-754.
- DTTAS 2008. Value for Money Review of the Strategic Non-National (Regional and Local) Roads Programme. Dublin, Ireland: Department of Transport, Tourism And Sport.
- DUCOS, G. & DUPRAZ, P. The asset specificity issue in the private provision of environmental services: Evidence from agri-environmental contracts. 8th International Meeting of the Association for Public Economic Theory, 2007 Vanderbilt University, Nashville.
- DUCOS, G., DUPRAZ, P. & BONNIEUX, F. 2009. Agri-Environment Contract Adoption Under Fixed and Variable Compliance Costs. *Journal of Environmental Planning and Management*, 52, 669-687.
- EUROPEAN COMMISSION 2008. Evalsed, the resource for the Evaluation of Socio-Economic Development. Luxembourg: Official Publications Office of the European Communities.
- FALCONER, K. 2002. Developing Co-operative Approaches to Agri-environmental Policy: a Transactions Cost Perspective on Farmer Participation in Voluntary Schemes. In: HAGEDORN, K. (ed.) *Environmental co-operation and institutional change: theories and policies for European agriculture*. Cheltenham, UK: Edward Elgar Publishing Ltd.
- FALCONER, K., DUPRAZ, P. & WHITBY, M. 2001. An Investigation of Policy Administrative Costs Using Panel Data for the English Environmentally Sensitive Areas. *Journal of Agricultural Economics*, 52, 83-103.
- FALCONER, K. & SAUNDERS, C. 2002. Transaction Costs for SSSIs and Policy Design. *Land Use Policy*, 19, 157-166.
- FALCONER, K. & WHITBY, M. 1999. The invisible costs of scheme implementation and administration. In: VAN HUYLENBROECK, G. & WHITBY, M. (eds.) *Countryside Stewardship: Farmers, Policies and Markets*. Amsterdam: Elsevier.
- FANG, F., EASTER, K. W. & BREZONIK, P. L. 2005. Point-nonpoint source water quality trading: A case study in the Minnesota River basin. *JAWRA Journal of the American Water Resources Association*, 41, 645-657.
- GAMBETTA, D. 1988. *Trust: Making and Breaking Cooperative Relations*, Blackwell.
- GARRICK, D., MCCANN, L. & PANNELL, D. J. 2013a. Transaction Costs and Environmental Policy: Taking Stock, Looking Forward. *Ecological Economics*, 88, 182-184.
- GARRICK, D., WHITTEN, S. M. & COGGAN, A. 2013b. Understanding the Evolution and Performance of Water Markets and Allocation Policy: A Transaction Costs Analysis Framework. *Ecological Economics*, 88, 195-205.
- GROVER, R. 2014. Compulsory purchase. *Journal of Property Investment & Finance*, 32, 518-529.
- GULATI, R. 1995. Does familiarity breed trust? The implications of repeated ties for contractual choice in alliances. *Academy of management journal*, 38, 85-112.
- HAGEMANN, N., PRAGER, K. & BARTKE, S. 2015. Costs of Implementing Agricultural Soil Protection Policies—Insights from Two German Cases. *Journal of Environmental Policy & Planning*, 17, 656-672.
- HAYEK, F. A. 1945. The use of knowledge in society. *The American economic review*, 519-530.
- JAFFE, A. J. 1996. On the Role of Transaction Costs and Property Rights in Housing Markets. *Housing Studies*, 11, 425-434.

- JARAITE, J., CONVERY, F. & DI MARIA, C. 2010. Transaction costs for firms in the EU ETS: lessons from Ireland. *Climate Policy*, 10, 190-215.
- KAUKO, T. 2012. An Institutional Analysis of Property Development, Good Governance and Urban Sustainability. *European Planning Studies*, 20, 2053-2071.
- KLEIN, P. G. 1998. New Institutional Economics. Available at SSRN 115811.
- KUPERAN, K., ABDULLAH, N. M. R., POMEROY, R. S., GENIO, E. L. & SALAMANCA, A. M. 2008. Measuring Transaction Costs of Fisheries Co-Management. *Coastal Management*, 36, 225-240.
- LAI, L. W. C. 1994. The Economics of Land-Use Zoning: A Literature Review and Analysis of the Work of Coase. *The Town Planning Review*, 65, 77-98.
- LAI, L. W. C. 2005. Neo-Institutional Economics and Planning Theory. *Planning theory*, 4, 7-19.
- LAI, Y. & TANG, B. 2016. Institutional barriers to redevelopment of urban villages in China: A transaction cost perspective. *Land Use Policy*, 58, 482-490.
- LATACZ-LOHMANN, U. & VAN DER HAMSVOORT, C. P. C. M. 1998. Auctions as a Means of Creating a Market for Public Goods from Agriculture. *Journal of Agricultural Economics*, 49, 334-345.
- LAURIAN, L., CRAWFORD, J., DAY, M., KOUWENHOVEN, P., MASON, G., ERICKSEN, N. & BEATTIE, L. 2010. Evaluating the outcomes of plans: theory, practice, and methodology. *Environment and Planning B: Planning and Design*, 37, 740-757.
- LIBECAP, G. D. 1989. *Contracting for Property Rights*, Cambridge, Cambridge University Press.
- LICHFIELD, N. 2001a. The Philosophy and Role of Community Impact Evaluation in the Planning System. In: VOOGD, H. (ed.) *Recent Developments in Evaluation*. Groningen: Geo Press.
- LICHFIELD, N. 2001b. Where do we go from here? In: VOOGD, H. (ed.) *Recent Developments in Evaluation*. Groningen, Netherlands:: Geopress.
- LICHFIELD, N. & PRAT, A. 1998. Linking ex-ante and ex-post evaluation in British town planning. In: LICHFIELD, N., BARBANENTE, A., BORRI, D., KHAKEE, A. & PRAT, A. (eds.) *Evaluation in planning: Facing the challenge of complexity*. Dordrecht, Netherlands: Kluwer.
- MALONE, T. W., YATES, J. & BENJAMIN, R. I. 1987. Electronic Markets and Electronic Hierarchies. *Communications of the ACM*, 30, 484-497.
- MARSHALL, G. R. 2013. Transaction Costs, Collective Action and Adaptation in Managing Complex Social–Ecological Systems. *Ecological Economics*, 88, 185-194.
- MASTEN, S. E., MEEHAN, J. W. & SNYDER, E. A. 1991. The Costs of Organization. *Journal of Law, Economics, and Organization*, 7, 1-25.
- MCCANN, L. 2013. Transaction Costs and Environmental Policy Design. *Ecological Economics*, 88, 253-262.
- MCCANN, L., COLBY, B., EASTER, K. W., KASTERINE, A. & KUPERAN, K. V. 2005. Transaction Cost Measurement for Evaluating Environmental Policies. *Ecological Economics*, 52, 527-542.
- MCCANN, L. & EASTER, K. W. 2000. Estimates of Public Sector Transaction Costs in NRCS Programs. *Journal of Agricultural and Applied Economics*, 32, 555-564.
- METTEPENNINGEN, E., BECKMANN, V. & EGGERS, J. 2011. Public Transaction Costs of Agri-Environmental Schemes and Their Determinants—Analysing Stakeholders' Involvement and Perceptions. *Ecological Economics*, 70, 641-650.
- MICELLI, E. 2002. Development Rights Markets to Manage Urban Plans in Italy. *Urban Studies*, 39, 141-154.
- MORRISON, M., DURANTE, J., KREIG, J. & WARD, J. 2008. Encouraging participation in market based instruments and incentive programs. *Final Report Prepared for Land and Water Australia*.
- MOXEY, A., WHITE, B. & OZANNE, A. 1999. Efficient Contract Design for Agri-Environment Policy. *Journal of Agricultural Economics*, 50, 187-202.
- NEEDHAM, B. & DE KAM, G. 2004. Understanding How Land is Exchanged: Co-ordination Mechanisms and Transaction Costs. *Urban Studies*, 41, 2061-2076.
- NILSSON, F. O. L. 2009. Transaction Costs and Agri-Environmental Policy Measures: Are Preferences Influencing Policy Implementation? *Journal of Environmental Planning and Management*, 52, 757-775.

- NILSSON, M. & SUNDQVIST, T. 2007. Using The Market at a Cost: How the Introduction of Green Certificates in Sweden Led to Market Inefficiencies. *Utilities Policy*, 15, 49-59.
- NORTH, D. C. 1990. *Institutions, Institutional Change and Economic Performance*, Cambridge, Cambridge University Press.
- NORTH, D. C. 1997. Transaction Costs through Time. In: MENARD, C. (ed.) *Transaction cost economics: Recent Developments*. Cheltenham, UK: Edward Elgar Publishing.
- NRA. 2017. *Compulsory Purchase Order Procedures and Compensation for National Road Schemes* [Online]. Dublin, Ireland: The National Roads Authority. [Accessed [09/02/2017].
- OLIVEIRA, V. & PINHO, P. 2009. Evaluating Plans, Processes and Results. *Planning Theory & Practice*, 10, 35-63.
- OLIVEIRA, V. & PINHO, P. 2010. Evaluation in Urban Planning: Advances and Prospects. *Journal of Planning Literature*, 24, 343-361.
- PANNELL, D. J., ROBERTS, A. M., PARK, G. & ALEXANDER, J. 2013. Improving Environmental Decisions: A Transaction-Costs Story. *Ecological Economics*, 88, 244-252.
- PEERLINGS, J. & POLMAN, N. 2008. Agri-environmental contracting of Dutch dairy farms: the role of manure policies and the occurrence of lock-in. *European Review of Agricultural Economics*, 35, 167-191.
- PLANNING AND DEVELOPMENT ACT 2000. In: IRELAND, G. O. (ed.). Dublin, Ireland.
- RØRSTAD, P. K., VATN, A. & KVAKKESTAD, V. 2007. Why Do Transaction Costs of Agricultural Policies Vary? *Agricultural Economics*, 36, 1-11.
- SAUSSIÉ, S. 2000. Transaction costs and contractual incompleteness: the case of Électricité de France. *Journal of Economic Behavior & Organization*, 42, 189-206.
- SCSI. 2017. *A Clear Guide to Compulsory Purchase Orders and Compensation* [Online]. Dublin, Ireland: The Society of Chartered Surveyors Ireland. Available: https://www.scsi.ie/documents/get_job?id=402&field=file [Accessed 09/02/2017].
- SEASONS, M. 2003. Monitoring and evaluation in municipal planning. *Journal of the American Planning Association*, 69, 430-440.
- SHAHAB, S., CLINCH, J. P. & O'NEILL, E. 2017a. Impact-based Planning Evaluation: Advancing Normative Criteria for Policy Analysis. *Environment and Planning B: Urban Analytics and City Science*, In Press.
- SHAHAB, S., CLINCH, J. P. & O'NEILL, E. 2017b. Impact-based Planning Evaluation: Advancing Normative Criteria for Policy Analysis. *Environment and Planning B: Urban Analytics and City Science*, Forthcoming.
- SHAHAB, S., CLINCH, J. P. & O'NEILL, E. 2017c. Timing and Distributional Aspects of Transaction Costs in Transferable Development Rights Programs. *Habitat International*, Forthcoming.
- SIMON, H. A. 1972. Theories of Bounded Rationality. *Decision and organization*, 1, 161-176.
- STALEY, S. R. 2001. Ballot-Box Zoning, Transaction Costs, and Urban Growth. *Journal of the American Planning Association*, 67, 25-37.
- STAVINS, R. N. 1995. Transaction Costs and Tradeable Permits. *Journal of Environmental Economics and Management*, 29, 133-148.
- STAVINS, R. N. 2001. Experience with Market-Based Environmental Policy Instruments. *Resources for the Future*.
- TALÉN, E. 1997. Success, failure, and conformance: an alternative approach to planning evaluation. *Environment and Planning B: Planning and Design*, 24, 573-587.
- TAN, R., BECKMANN, V., QU, F. & WU, C. 2012. Governing Farmland Conversion for Urban Development from the Perspective of Transaction Cost Economics. *Urban Studies*, 49, 2265-2283.
- WEBSTER, C. J. & LAI, L. W.-C. 2003. *Property rights, planning and markets: managing spontaneous cities*, Edward Edgar.
- WILLIAMSON, O. E. 1975. *Markets and Hierarchies, Analysis and Antitrust Implications: A Study in the Economics of Internal Organization*, New York, The Free Press.
- WILLIAMSON, O. E. 1981. The Economics of Organization: The Transaction Cost Approach. *American journal of sociology*, 548-577.
- WILLIAMSON, O. E. 1985. *The Economic Institutions of Capitalism*, New York, Free Press.

- WILLIAMSON, O. E. 1989. Transaction Cost Economics. *In*: SCHMALESEE, R. & WILLIG, R. (eds.) *Handbook of Industrial Organization*. New York: North Holland.
- WILLIAMSON, O. E. 1993a. Calculativeness, trust, and economic organization. *The Journal of Law & Economics*, 36, 453-486.
- WILLIAMSON, O. E. 1993b. Opportunism and its critics. *Managerial and Decision Economics*, 14, 97-107.
- WILLIAMSON, O. E. 1996. *The Mechanisms of Governance*, Oxford University Press.
- WILLIAMSON, O. E. 1998. Transaction Cost Economics: How It Works; Where It is Headed. *The Economist*, 146, 23-58.
- WILLIAMSON, O. E. 2000. The New Institutional Economics: Taking Stock, Looking Ahead. *Journal of Economic Literature*, 38, 595-613.
- WOODWARD, R. T. & KAISER, R. A. 2002. Market Structures for U.S. Water Quality Trading. *Review of Agricultural Economics*, 24, 366-383.
- ZAHEER, A. & VENKATRAMAN, N. 1995. Relational governance as an interorganizational strategy: An empirical test of the role of trust in economic exchange. *Strategic Management Journal*, 16, 373-392.